



The importance of the special effects device today is vastly different from when it first appeared on the market. The first generation of effects, those which began appearing in the mid-sixties (Fuzztones, Wah wahs), were in general, crudely designed products that often added more negative effects than positive ones. What lifetime they did have was almost always short due to their construction, or lack of it. However, the market's overwhelming receptiveness to these new devices proved that special effects are not only interesting, but can actually be instrumental in the furtherance of an individual's music. The umbilical cord between the instrument and the amplifier had finally been broken, once and for all.

The 1970s saw the emergence of effects as truly musical devices—devices as essential to the music played as the instruments and amplifiers. This second generation of effects, those of the 70s, incorporated mainly technology borrowed from the recording studio, which was transformed into on-stage performance-type packages. Devices like phasers, compressors, equalizers, and flangers suddenly became the norm in on-stage special effects. But, while this second generation of effects reflected more advanced circuit design, its physical design was usually not much different from the first generation predecessors, and therefore, it had many of the same inherent problems.

These problems have been compounded by the 1970s technological advancements of instrument amplification, sound reinforcement and home multi-track recording equipment. Now in 1980 we find ourselves in a position where the 1970s standards in effects are virtually obsolete.

In light of this growing realm of electronic technology around us, we have moved into a new era of musical development that demands more sophistication than currently exists in the effects we use. We are in need of the next step—the third generation of effects—designed to be the standard of the 80s. And that's why BOSS entered the market.

BOSS is the effects and accessories division of the Roland Corporation. We developed BOSS as an independent line because we felt that the current needs of the marketplace for effects devices goes beyond the 1960s design technology that virtually all other effects manufacturers use as their standard.

It was our belief that in order to meet the future's needs for low noise operation, durability in packaging, reliability in performance and overall ease of operation, we had to rethink the effects device from the standpoint of the musician's current and future needs, and design our products accordingly, not merely as a reaction to what had come before. Consequently, the BOSS line of products is a line of unique differences...and unique advantages.

All BOSS products are designed and manufactured at our factory in Osaka, Japan. The BOSS Production and Engineering Departments are in a separate location from the other Roland factories but work in direct cooperation with the rest of the Roland organization—benefiting from the same talents and expertise used in Roland amplifiers, signal processors, keyboards, and studio synthesizer systems.

When we set out to develop our line of effects devices we decided to examine the musician's needs from every conceivable angle—even how an effect is turned on...and that's where we found one of its biggest problems—the switch. The standard footswitch is one holdover from the very first (and most primitive) effects devices. Not only is a mechanical switch audibly noisy and prone to failure, it is also prone to make popping noises in the signal when it is engaged.

By rethinking the problem we came up with our unique FET switching system. In the FET system there are no mechanical contacts in the signal system so it won't make an audible click, and it can't make a pop. The switching is done totally electronically and therefore, clearly, We use FET switching in all of the BOSS effects devices.

Our concern for low noise operation didn't stop at the switch. We carried the idea of low noise even further in the design of each circuit, so that not only do the products perform well, they also perform quietly. In fact, BOSS pedals have the best overall signal to noise rating of any effects manufacturer with average signal to noise ratio consistently better than 80dB.

In solving our switching problem, we also solved one of reliability—the battery. Our studies have shown us that over 80% of all effects pedal failures occur due to problems associated with the simple process of changing the battery. That's why we've

designed our pedals differently. BOSS pedals have been designed to allow you to replace the battery without exposing the electronics. In a BOSS pedal, the battery sits in a special compartment under the same footswitch plate that activates the silent break off connections or damage circuitry. And, when the time comes to replace the battery, you don't even need tools. A coin will open the compartment. No more stripped threads, no more broken connections.

For many of you, battery operation is not necessarily the most desirable situation, so for you, we've provided a battery eliminator jack on every product that uses batteries, and our BOSS product line also includes the ACA-120 adapter to power them.

Our new Rocker series effects have been designed using the Hall Effect, a type of magnetic field effect which totally eliminates the need for gears or other mechanical devices; providing for the first time totally noiseless and scratch-free foot control of an effects device.

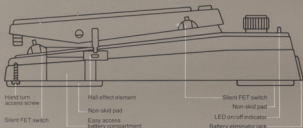
These are just a few of the differences you'll find in the BOSS line of effects. Other differences include skid pads on each pedal, LED indicators (so you can see whether a pedal is on or off even in the darkest on-stage situation), and a host of other operating features that will become apparent as you read through this catalog.

The BOSS line doesn't just stop with effects. Also included in the BOSS group of products are some of the most unique and interesting products ever to appear in the musical instrument industry. In each case we've re-thought some old ideas and injected a bit of new inspiration.

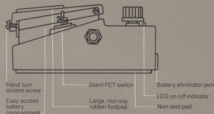
By looking at the drawbacks associated with using VU meters in tuning musical instruments, we've applied the more reliable and visually accurate LEDs and put together the two most accurate market-priced instrument tuners available. By looking at the monotony of a simple metronome, we've designed probably the most innovative and enjoyable practice and writing device ever...the BOSS Dr. Beat. And our Dr. Rhythm will undoubtedly rewrite the rules for rhythm devices of the future.

You'll find our Mixers and other accessories to be designed with the same integrity, imagination, and excitement. It is an attitude inherent in any BOSS product, and an attitude that exists for two reasons. We listen to your problems. And we design for your needs.

ROCKER Effects



BOSS Effects



Effects Devices

CS-1 Compression Sustainer



The CS-1 Compression Sustainer is a compression device designed to produce sustained tones that are clear and undistorted. The unit's wide compression range and high input level allow it to be used with a wide variety of musical instruments.

The controls on the CS-1 are Level, Sustain and Mode. The Level control is used to compensate for level differences between the normal and effect settings. The Sustain control provides adjustment of the compression range. When set at the full clockwise position the sustain is the longest. When this control is turned counter clockwise, the compression increases, allowing the unit to limit the output level. This is particularly useful in adding punch to a guitar, bass, or electric piano.

A particularly interesting feature of the CS-1 is the Mode switch, which is switchable between normal, and a treble position which accentuates sustain of the upper frequencies. This allows the unit to even-out the response of a guitar or other instruments such as an electric piano.

Specifications

Power	9V Battery, AC Adapter DC9V 5mA
Current draw	
Equivalent input noise	-100dB
Maximum input	+5dB
Maximum output	-10dB
Compression Range	60dB
Output load impedance	Over 10K Ω
Attack time	7mS
Release time	150mS
Dimensions	2.8(W) x 2.2(H) x 4.9(D) in.
Weight	0.88 lbs.

PH-1 Phaser



Phase shifting is one of the most usable effects to come out of the last decade, and the PH-1 Phaser is certainly the ultimate refinement of that phase shifter technology. The PH-1 is a four-stage phase shifter that performs all of the classic phase shifting effects with clarity, brilliance and depth. The phase shift range is 720 degrees produced by two phase shift notches.

The two controls on the PH-1 are Rate and Depth. The Rate control attenuates the extremely wide-ranging LFO to provide for more sweep rate variance than is found on any other phase shifter on the market. The variable sweep speeds range from 100 mS to an incredible 16 seconds. The Depth control provides for notch depth adjustment allowing the PH-1 to adapt to virtually any phasing need. Adjustment of this control provides not only for additional intensity of the effect, but also allows the PH-1 to be tailored to whatever instrument you use it with.

Combining all the above operating features with the standard BOSS design features, the PH-1 is a uniquely flexible phaser that is equally adaptable to guitar, bass, keyboards, and its low noise output also makes it ideal for PA or recording.

Specifications

Power	9V Battery, AC Adapter DC9V 7mA
Current draw	
Phase	4 Stage
LFO speed	16 sec - 100mS
S/N ratio	Over 80dB
Maximum input	-20dB
Phase shift	720°
Gain	Unity
Dimensions	2.8(W) x 2.2(H) x 4.9(D) in.
Weight	1.1 lbs.

OD-1 Over Drive



The BOSS Over Drive has been designed to exactly replicate the sound of an overdriven tube amplifier when used in any amplification set-up. Unlike conventional distortion devices, the OD-1 is highly touch-sensitive and will respond to the guitarist's most delicate playing techniques.

The controls on the Over Drive are for Level and Over Drive. The Level control is designed to compensate for level differences between the normal and effect signals. The Over Drive control operates the amount of the Over Drive effect from a very soft, subtle effect to one that is extremely hard.

A distinct advantage of the OD-1 is its ability to adapt to any guitar, producing the Over Drive effect without fundamentally altering the tonal characteristics of the guitar itself.

Specifications

Power	9V Battery, AC Adapter
Current draw	DC9V, 3.5mA
S/N ratio	80dB
Input impedance	220K Ω
Output load impedance	Over 600K Ω
Maximum gain	37dB
Dimensions	2.8(W) x 2.2(H) x 4.9(D) in.
Weight	1.1 lbs.

DS-1 Distortion



The DS-1 is an effects device designed to produce variable distortion and sustain effects. The units wide range of distortion effects allow the effect to be varied from very soft to very hard.

A level control determines the DS-1's output level so that it can match or contrast with the straight signal. The Distortion control varies the distortion effect over its full range. The third control on the DS-1 is the Tone control which varies the effect from crisp highs to soft lows.

Specifications

Power	9V Battery, AC Adapter
Current draw	DC9V, 4mA
Input impedance	220K Ω
Output load impedance	Over 10K Ω
Maximum gain	47dB
Dimensions	2.8(W) x 2.2(H) x 4.9(D) in.
Weight	0.88 lbs.

NF-1 Noise Gate



The NF-1 is a product designed to remove unwanted hum or noise from a performance by gating off the signal after a note has been played. Unlike other noise gates on the market, the NF-1 has been designed to perform at optimum efficiency in noise reduction without adding any unwanted coloration.

The controls on the NF-1 are for Sensitivity and Decay. The Sensitivity control adjusts the gating threshold of the device (the level at which the gate cuts in). The other control on the Noise Gate is the Decay control. The Decay control allows you to set how long of a decay each note will have before the gate cuts in. The addition of this control solves the problem of the Noise Gate cutting into the decaying signal causing an abrupt or percussive ending. Proper adjustment of the Decay control allows you to match any instrument's envelope and provide a natural sounding decay.

Specifications

Power	9V Battery, AC Adapter
Current	DC9V, 3.9mA
Max. output voltage	+9dBm
Gain	Unity
Input impedance	220K Ω
Output load impedance	Over 10K Ω
Attack time	1mS
Release time	100mS—1.6 sec. (variable)
Gating threshold	-65 to -35dBm (variable)
Dimensions	2.8 (W) x 2.2 (H) x 4.9 (D) in.
Weight	0.88 lbs.

Effects Devices

SG-1 Slow Gear



The BOSS Slow Gear is a unique and versatile device which is designed to provide envelope attack control over guitars and bass guitars. With the Slow Gear, it is possible to produce a dramatic violin-like bowing attack on each note. In the past, this effect could only be accomplished by the oftentimes clumsy manipulation of a guitar's volume controls, or through the use of a device like a volume pedal which was not directly attack dependent.

The envelope of the Slow Gear is variable by means of the Attack control. This control adjusts how long of an attack the unit will provide. The attack time of the Slow Gear is variable from 50 milliseconds to 300 milliseconds.

The other control on the Slow Gear is for Sensitivity. As its name implies, this control adjusts the sensitivity or responsiveness of the Slow Gear to the level of attack of the instrument.

The effect of the Slow Gear is clear and dramatic for guitars, and frees the guitarist to concentrate on his playing rather than concentrating on producing the effect using volume controls.

When used with bass guitar the Slow Gear produces a lush string bass sound, equally adaptable to solo or accompaniment performances.

Specifications

Power	9V Battery, AC Adapter
Current draw	DC9V, 3.9mA
Input impedance	220K Ω
Output Load impedance	Over 10K Ω
Attack time	50mS—300mS, (variable)
Gain	Unity
Dimensions	2.8 (W) x 2.2 (H) x 4.9 (D) in.
Weight	0.88 lbs.

TW-1 Touch Wah



The Touch Wah is an envelope controlled filter designed to produce a "wah" effect that is completely touch responsive. The wide tonal response of the Touch Wah enables it to be used with any number of different musical instruments. Guitars, bass guitars, electric piano, wind and brass instruments, even string synthesizers can be greatly enhanced by the Touch Wah effect.

The Touch Wah controls provide for unequalled versatility in performance. The Peak control sets the frequency range over which the Touch Wah operates. The lower this is set, the lower the frequency threshold; and therefore, the effect becomes more subtle. The Sensitivity control, as its name implies, effects the responsiveness or attack sensitivity of the effect. This allows the unit to be adjusted to various playing styles, and also is used for other special effects. The lower this control is set the harder you must play to produce the wah effect. As this is rotated clockwise, the unit responds to a much lighter touch.

A completely unique feature on the Touch Wah is the Drive switch. Whereas most conventional envelope filters have the wah effect fixed in one direction (either bass to treble or treble to bass) the Touch Wah's Drive switch allows the effect to move either up or down at the flick of a switch. This combined with the standard BOSS features of low noise and reliability make the Touch Wah a dramatic addition to any instrument set-up.

Specifications

Power	9V Battery, AC Adapter
Current draw	DC9V, 6mA
S/N ratio	Over 80dB
Input impedance	220K Ω
Output load impedance	Over 10K Ω
Dimensions	2.8 (W) x 2.2 (H) x 4.9 (D) in.
Weight	0.88 lb.

GE-6 Graphic Equalizer



The GE-6 Graphic Equalizer is a compact, full function equalizer designed for tonal control of any musical signal. No matter what your performance set-up involves, there will invariably be some need to control your acoustic environment. Whether that means compensating for room acoustics or deficiencies in equipment, the GE-6 Graphic Equalizer is the ideal unit to provide that control.

The BOSS GE-6 Graphic Equalizer has six octave bands spanning the frequency spectrum with a control range $\pm 15\text{dB}$ on each band. Center click detents at the 0dB mark effectively remove any band from the circuit when desired.

Unlike other compact equalizers, the addition of the BOSS silent FE T switch on the GE-6 allows it to be switched in and out of the signal flow. This extra control means that in addition to its uses as a control device, the GE-6 can double as a special effect by boosting only one or two sliders for effect, and switching on only when desired.

Another impressive operating feature of the GE-6 is its incredibly low signal to noise ratio of over 90dB, which makes it quieter than many studio equalizers. This, combined with all of the other features, surely makes the GE-6 the standard by which all other compact equalizers will be measured.

Specifications

Power	9V Battery, AC Adapter
Current draw	DC9V, 7mA
Frequency centers	100Hz, 200Hz, 400Hz, 800Hz, 1.6KHz, 3.2KHz
Control range	$\pm 15\text{dB}$
S/N ratio	Over 90dB
Frequency response	15Hz-25KHz, $\pm 2\text{dB}$
Input impedance	220K Ω
Output load impedance	Over 600 Ω
Dimensions	2.8 (W) x 2.2 (H) x 4.9 (D) in.
Weight	1 lb.

CE-2 Chorus



The CE-2 is a compact version of our famous CE-1 Chorus Ensemble (featured later in this catalog). Like the CE-1, the CE-2 Chorus features the unique and highly usable BOSS Chorus sound. One of the major reasons for the success of the chorus effect is that its tonal characteristics permit it to be used in a wide variety of applications from guitars, keyboards, wind and brass instruments, to vocal PA applications.

The CE-2 provides controls over both Rate and Depth of the Chorus effect. Like other BOSS effects the CE-2 features silent switching, LED on/off indicator, and rugged, reliable packaging.

The CE-2 also features one of the lowest signal to noise ratios of all BOSS effects rated over 90dB, which makes it an ideal effect for recording situations.

Specifications

Power	9V Battery AC Adapter
Current draw	DC9V 9mA
S/N	Over 90dB
Maximum input level	0dBm (100Hz), -10 dBm (1KHz)
Input impedance	470K Ω
Output load impedance	Over 10K Ω
Dimensions	2.8 (W) x 2.2 (H) x 4.9 (D) in.
Weight	0.88 lbs

SP-1 Spectrum



The BOSS Spectrum is a tunable parametric filter designed to accent a specific portion of the frequency spectrum. The Spectrum creates a sharp frequency spike which can be tuned throughout its entire range by use of the Spectrum control. The effect can be set at any point between 500Hz and 5KHz. The other control on the Spectrum is a Balance control for attenuation between normal and effect signals.

The dramatic and interesting Spectrum effect can be used with any guitar, and is particularly effective on bass guitar. When used in combination with a Phaser or Chorus device the result is an interesting tonal enhancement.

Specifications

Power	9V Battery AC Adapter
Current draw	DC9V 3.5mA
S/N ratio	80dB
Input impedance	220K Ω
Output load impedance	Over 600 Ω
Dimensions	2.8(W) x 2.2(H) x 4.9(D) in.
Weight	1.1 lbs.

Adapter

ACA-120



All BOSS Compact and Rocker effects units are designed to operate on a battery, or on AC with an adapter. The BOSS ACA 120 is designed to operate BOSS effects from 117V line current. Optional ACA Adapters are also available for 220V and 240V 50/60Hz line currents.

Effects Devices

CE-1 Chorus Ensemble



The BOSS Chorus Ensemble is the originator of the Chorus effect, and in its short lifetime has already become one of the effects industry's most in-demand products. The development of the Chorus effect is a result of our years in time delay technology, and the effect has yet to be duplicated by any other manufacturer.

The CE-1 produces lush and intense tonal textures that give a solo instrument a thicker, deeper sound, reminiscent of a double voice, or chorus of voices. In addition to the Chorus effect, the CE-1 also produces a Vibrato effect. Switching of the two effects is achieved by means of two silent FET footswitches. One switches the effect in or out of signal, the other switches between Chorus and Vibrato modes. All functions are indicated by LEDs for immediate status indication.

A single Intensity control adjusts the Chorus effect. The Vibrato section features controls over both Depth and Rate. A Level control serves to adjust both effects' balance with the normal signal. The CE-1 features a stereo output, which, when assigned to different amplifiers, greatly increases the Chorus effect with an even more intense feeling of motion.

Specifications

Power consumption	3W
Input sensitivity	80mV/10mV
Output level	200mV
S/N ratio	60dB (Over 75dB with noise reduction)
Indicators	Peak level, Chorus/Vibrato/Normal
Dimensions	10.2(W) x 2.5(H) x 7.1(D) in.
Weight	3.96 lbs.

DB-5 Driver



An interesting and unique effects device, the BOSS Driver is used to add an intense attack and distortion effect to both lead and bass guitar. The Driver features three different operating modes: Equalizer, Attack + Equalizer, and Distortion + Equalizer.

One control attenuates the Attack of the device, and also attenuates the amount of Distortion, depending on which mode is selected. The Equalizer section features five bands of equalization with center-click detents and a control range of ± 12 dB. The Balance control serves to compensate between normal and effect signals.

The Driver features two inputs: one for guitar and one for bass and a three position input level attenuator, switching in and out of effect is done by a BOSS silent FET switch.

Specifications

Power	6 x 1.5V Battery, AC Adapter
Equalizer	5 band, 100Hz, 300Hz, 600Hz, 1.2KHz, 3KHz
Equalizer Control range	± 12 dB
Gain	Unity
S/N ratio	More than 80dB
Input impedance	220k Ω
Output load impedance	Over 1K Ω
Maximum output level	+15dBm
Dimensions	10.2(W) x 2.5(H) x 7.1(D) in.
Weight	4 lbs.



The Delay Machine is a rugged effects device designed to produce analog echo effects. The delay range of the Delay Machine is from 25 to 500 milliseconds, which is sufficient at its shortest range to produce double voicing effects. The DM-1 features a special frequency controlled filter which is used to provide the echo signal with a natural-sounding decay.

The Delay control provides continuous variation over the entire delay range. The Intensity control adjusts the regeneration (number of repeats) from only one slap-back echo out to an infinite non-deteriorating echo. A Balance control adjusts the balance between the dry and time-delayed signals.

A three-position Input Level attenuator allows for different input signals, which is a critical feature, because an echo device is usually run last in a line of effects and, therefore, should be attenuated to the devices run before it.

Specifications

Power consumption	3W
Delay time	25-500ms continuous
Bandwidth	Dry 20KHz Delayed 10K-1KHz (variable with delay time)
Input impedance	220K Ω
Output load impedance	Over 600 Ω
Gain	Unity
S/N ratio	Better than 80dB
Dimensions	10.2(W) x 2.5(H) x 7.1(D) in.
Weight	3.9 lbs.



The BOSS Flanger provides all the control and flexibility needed in a pedal flanger combined with the reliability and low noise operation you expect from a BOSS product. The BF-1 produces reel-flanging effects, pitch bending and vibrato effects with convenience, flexibility and superb clarity.

One of the most outstanding features about the BF-1 Flanger is its low signal to noise ratio, which is rated at better than 80dB. One of the reasons for the low noise output is that the BF-1 uses an external power source, a BOSS ACA-120 adapter, which we include with the BF-1.

Controls on the BF-1 include: Manual, for manual control of the delay time over its full range of 0.5 to 16mS. Depth, which controls how much of the total delay range is used, and Rate of Sweep. The Sweep of the BF-1 goes from a fast 100mS to a slow 20 seconds to complete the sweep cycle. A Resonance control serves to recycle a portion of the output back through the circuit (regeneration) for increased intensity.

Specifications

Power	BOSS AC Adapter (included)
Input impedance	220K
Output impedance	More than 600 Ω
Frequency response	20Hz—20KHz
Delay time	0.5mS—16mS
Sweep oscillator rate	100ms—20S
Gain	Unity
S/N ratio	Better than 80dB
Dimensions	4.5(W) x 2.6(H) x 8.1(D) in.
Weight	1.4 lbs.



When we set out to develop our new Rocker Series effects we carefully analyzed the problems traditionally associated with rocker pedal effects. Certainly one of the most universal complaints was noise. The noise problem in past effects was largely due to mechanical contacts in the rocker system. Gears, bellcranks, levers, potentiometers were all prone to mechanical stress, wear, and therefore, noise.

In the BOSS Rocker system, there are no mechanical contacts whatsoever. The BOSS Rockers use a system called the Hall Effect, which is basically a magnetic field variable by the pedal itself. By using the Hall Effect there

can be no wear and therefore, no noise can develop as a result of the rocker pedal action.

In solving the noise problem we also solved another—the throw of the pedal. Many rocker-pedals of the past had a throw (or total physical motion) which was either too shallow to be controllable, or too deep to be a comfortable foot motion. As the BOSS Rockers do not have to compensate for a mechanical action the throw has been made fully controllable yet quite comfortable as well.

The BOSS Rockers feature all the standard operating features found on the BOSS compact effects devices, such as: LED on/off indicators, easy and safe (to the unit) battery change, battery eliminator jacks, non-skid pads, and silent FET switching. Just as we rewrite the standards for compact effects devices, we've done it again for the Rockers.

The effect they said was "a passing fad" in 1966 has indeed proven its long range acceptance, and the BOSS Rocker Wah's emergence will assure the wah effect's acceptance in the future. The Rocker Wah produces the classic Wah effect with clarity and intensity and also offers some new flexibility as well.

A three position Range switch selects the center frequency at which the Wah effect occurs. At the Mid setting, the classic Wah effect occurs with primary emphasis on the mid frequencies. At the Hi setting the upper frequencies have emphasis and, likewise, at the Lo position the lower bass frequencies are most effected. A variable Width control allows you to select how wide a range the throw of the Rocker pedal sweeps over.

Like all BOSS effects, the Rocker Wah is activated by a silent switch located under the toe of the Rocker. A slight pressure on the front of the pedal is enough to turn the unit on, and an LED indicates the status.

Specifications

Power	2 x 1.5V Battery, AC Adapter
Current draw	DC3V 50mA
Input impedance	470K
Output load impedance	Over 10K
Dimensions	4.3(W) x 2.6(H) x 12.6(D) in.
Weight	2.86 lbs.



The Rocker Distortion is a unique application of the Distortion effect in a Rocker-controlled pedal. The distortion effect can be varied from non-existent to extremely hard by the sweep of the Rocker pedal.

The Level control adjusts the output level of the device. A Tone control allows the effect to achieve various colorations or merely accommodate the individual sound of the guitar. The Minimum Distortion Level control sets the amount of distortion when the pedal is first activated, the maximum distortion amount is controlled by the Rocker itself.

On/off is accomplished by means of a silent switch under the back of the Rocker pedal. A slight pressure downward with your heel is all that is needed to engage the effect. As the Rocker pedal moves forward the Distortion increases, and at its full forward position there is another surprise—another silent switch for a Warp effect which sends the normal 43dB gain up to an incredible 62dB gain producing high harmonic feedback effects.

Specifications

Power	2 x 1.5V Battery, AC Adapter
Current draw	DC3V 40mA
Input impedance	470K
Output load impedance	Over 10K
Maximum Gain	43dB (62dB warp switch activated)
Dimensions	4.3(W) x 2.6(H) x 12.6(D) in.
Weight	3.3 lbs.



For years musicians have struggled with mechanical-type metronomes which are inclined to be less than accurate and are also prone to mechanical failure. Electric metronomes have provided the accuracy necessary for the understanding of time, yet —until now—no metronome has enabled the musician to work efficiently with more complex time signatures and syncopation.

BOSS has introduced to its line of products the DB-33 Dr. Beat Electronic Metronome. The DB-33 features all four basic rhythm units, quarter note, eighth note, sixteenth note and eighth note triplets. (♩ ♪ ♫ ♬) with an individual level control for each to accentuate the rhythm. Beats can be set at 0, 2, 4, 5, and 6 beats per measure and a chime sounds on the first beat of each measure. Two Light Emitting Diodes (LEDs) are provided for visual monitoring. The first LED lights on the first beat of the measure, the second on the remaining beats. When the beat is set at 0 only the first LED operates.

The tempo is variable between (♩) = 40 to 208 beats per minute. An output jack is supplied for the use of headphones (great for drum practice) or for easy connection to any amplifier. The DB-33 is also ideal for laying down a click track in the studio. The DB-33 is very portable and operates on one 9 volt battery or can be used with an optional BOSS ACA-120 battery eliminator.

Specifications

Power	Battery 9V (1), AC Adapter
Current	6.5mA (no signal)
Tempo	mm (♩) = 40 - 208 (40 - 208 beats per minute) freely variable
Beats	0, 2, 3, 4, 5, 6
Rhythm Indicators	Audio beep and dual LED's
Controls	Tempo, Rhythm volume (♩ ♪ ♫ ♬) beat switch, start switch, volume
Dimensions	6.6(W) x 3.5(H) x 1.5(D) in.
Weight	0.77 lbs.



This dramatically different rhythm machine has its own microcomputer which lets you arrange and program your own rhythm patterns that can be recalled instantly at the touch of a button. With the Dr. Rhythm you can program six 16-step rhythm patterns and two 12-step patterns. Each pattern can contain up to three independently programmed percussion sounds: Snare Drum, Rim Shot, and Bass Drum. To this you can add programmed accents, or a fixed pattern Hi-hat sound. Not only that, but you can write both "A" and "B" versions of each pattern, thus doubling the effective memory capacity.

An Accent knob lets you control the strength of the accents added to the program. There are also controls for Volume, Tone, and Tempo. The Start/Stop function can be activated with the optional foot switch (FS-1), and a jack is provided for synchronizing the Dr. Rhythm with the CSQ-100 Digital Sequencer. With low power consumption for long battery life, the programmed rhythm patterns remain intact in memory even when it comes time to change the batteries.

Specifications

Power	6V DC (1.5V x 4)
Power consumption	7mA
Sound generators	Bass drum, Snare drum, Hi-hat, Rim shot, Accent
Rhythm selector	16 step (1-6), 12 step (7-8)
Sound switch	BD, SD, RS, AC
Mode switch	Play/Write
Variation switch	A/A+B/B
Hi-hat switch	Off / 8/12/16
Controls	Volume, Tempo, Tone, Accent
Dimensions	8(W) x 1.3(H) x 4.5(D) in.
Weight	1.87 lbs.

Tuners

TU-120 Instrument Tuner



The dependability and easy operation of the BOSS TU-120 Tuner makes it the logical choice for electric and acoustic instruments of all types.

With an accuracy of $\pm 1\%$, the TU-120 offers two tuning methods. After choosing one of the 12 chromatic tones on the note selector, you have the options of visually tuning with the 16 point LED stroboscopic display, or, by placing the function switch in the tone mode, you tune with the TU-120 by ear. Accuracy of both methods is assured with the TU-120's advanced tuning fork oscillator which is easily self-calibrated with the function switch in the check mode.

The BOSS TU-120 operates on a 9 volt battery or with the optional ACA-120 battery eliminator.

Like the TU-60, the TU-120 features a direct instrument input. The input will accept any conventional signal, and assures absolute accuracy in tuning, free from ambient sound interference.

Specifications

Power	9V Battery AC Adapter
Current draw	DC9V 13.3mA
Generated tone range	Switch Selection (C3-B5): Low, C3-B3 Mid, C4-B4 Hi, C5-B5
Strobe tuning range	Switch selection (C2-B6): Low, C2-B4 Mid, C3-B5 Hi, C4-B6
Pitch accuracy	± 1 cent
Display	16 LED Stroboscope
Standard pitch oscillator	440Hz ± 1 cent
Built-in microphone	Electret condenser microphone
Dimensions	3.8(W) x 1.6(H) x 7.6(D) in.
Weight	1.1 lbs.



Precise and accurate tuning is a must in the studio and on the stage. The features of the BOSS TU-60 Guitar Tuner makes tuning and intonating your electric or acoustic guitar easier than ever before.

Like the more sophisticated TU-120 Tuner, the TU-60 affords the guitarist two methods of tuning. Visual tuning by an eight point LED display or aurally when connected to an amplifier, both within $\pm 1\%$ tuning accuracy. Concert pitch is variable between 440Hz to 445Hz and the built-in electret condenser microphone allows the acoustic guitarist the same ease of operation. The extremely compact TU-60 Guitar Tuner is also an efficient tuning device for electric bass and operates on one 9 volt battery.

Specifications

Power	9V Battery
Current draw	DC9V 13mA
Strobe tuning range	6 tones, 3 octaves
Generated tone frequency	1E, 329.6Hz 2B, 246.9Hz 3G, 196.0Hz 4D, 146.8Hz 5A, 110.0Hz 6E, 82.41Hz (at standard tone A = 440Hz)
Standard pitch oscillator	440.00Hz, ± 1 cent
Display	8-LED Stroboscope
Built-in microphone	Electret condenser microphone
Dimensions	3.4(W) x 1.5(H) x 6.1(D) in.
Weight	0.77 lbs.



The KM-60 Mixer has been designed to provide those functions needed for quality reproduction in sound reinforcement, recording or instrument mixing. Each of the six channels has a three position Input Level Attenuator, and individual controls for Treble, Bass, Effect Level, Pan and Level.

Each channel of the KM-60 has its own effects send and return, which facilitates the interface of most effects devices. In addition, the KM-60 also features a master effects send with separate controls for both left and right channel effect levels.

The built in low-cut filter helps to prevent low range noise through microphones such as a proximity effect, wind noise or other low frequency disturbances. The KM-60 also features headphone monitoring facilities and

individual channel VU meters. The unique design of the KM-60 allows it to be either rack mounted, or flat mounted with an inclined position, simply by changing screw positions.

In addition to its uses in mixing situations requiring six channels, the KM-60 mixer also has the capability to be expanded. Two KM-60s can easily be connected together by means of stacking jacks on the rear panel to form a twelve channel mixer.

Specifications

Power consumption	4W
Inputs	6
Input impedance	3.9 K Ω (-50dB) 33K Ω (-35dB, -20dB)
Outputs	2
Output impedance	300 Ω (+4dB/0v4)
S/N ratio	Over 64dB
Individual channel controls	Level, Treble, Bass, Effect Level, Pan, Input Attenuator
Master controls	Level (2-left, right) Effect (2-left, right)
Channel effect	Send (6) 300 Ω (0dB) Return (6) 10K Ω (-26dB)
Master effect	Send (1) 300 Ω (0dB) Return (2) 20K Ω (-26dB)
Stereo monitor out	8 Ω
Dimensions	19(W) x 3.7(H) x 10.8(D) in.
Weight	10.4 lbs.



The KM-6 is a compact mixer designed for many mixing applications. The KM-6 contains most of the features found on the KM-60, but without the effects mastering facilities. The KM-6 features six channels with Input Level Attenuation on each channel, and individual channel controls for Level, Pan, Treble, and Bass.

The KM-6 will accommodate many different types of input signal from individual instrument or vocal microphone mixing to drum submixing or other recording applications.

A headphone jack provides for monitoring which can also be accomplished visually by means of the dual VU meters.

The KM-6 can be rack-mounted or flat-mounted in an inclined position by changing the position of the rack-mounting flange.

Specifications

Power consumption	4W
Input sensitivity	-50dB / -35dB / -20dB (3.1mV/18mV/100mV)
Output level	0dB (1V)
S/N ratio	Over 70dB
Individual channel controls	Level, Treble, Bass, Pan, Input Attenuator
Master controls	Level (2-left, right)
Stereo monitor out	8Ω
Dimensions	19(W) x 3.3(H) x 8.7(D) in.
Weight	8.4 lbs.



The KM-40 is a six channel mixer designed for multiple mixing applications. Like the KM-6 the KM-40 has six input channels that feature input attenuation, Level control and Pan control. On the KM-40 only channels 1-4 have treble and bass controls. Channels 5 & 6 lack equalization controls which is an advantage in processing instruments that are sometimes unnecessarily colored by equalization, synthesizers for example.

The KM-40 features channel master volumes and a unique LED display that graphically illustrates the output volume.

As with the KM-60 and KM-6, the KM-40 can either be rack-mounted, or flat-mounted.

Specifications

Power consumption	4W
Inputs	6
Input impedance	Channels 1-4 3.9 K Ω (-50dB) 33K Ω (-35dB, -20dB) Channels 5 & 6 1.8 K Ω (-50dB) 56K Ω (-35dB, -20dB)
Output level	0dB
Output load impedance	Over 600
Individual channel controls	Channels 1-4: Level, Treble, Bass, Pan, Level Attenuator Channels 5 & 6: Level, Pan, Input Attenuator
Master controls	Level (2-left, right)
Dimensions	19(W) x 8.7(H) x 3.3(D) in.



For keyboard players using more than two keyboards during a performance, or for guitarists who use several guitars during a performance, the KM-4 provides an effective, low-cost means of interfacing multiple instruments into performance.

The small size package of the KM-4 allows it to fit almost anywhere for maximum convenience. The low signal to noise ratio combined with the fine input sensitivity make the unit ideal for multi-keyboard mixing.

The KM-4 features four channels with independent volume controls and a master volume control for simultaneous control over all four channels. The unit is AC powered for permanent installation.

Specifications

Power consumption	0.7W
Input sensitivity	20mV
Output level	-12dB (200mV)
S/N ratio	Over 85dB
Dimensions	9.4(W) x 3.0(H) x 5.1(D) in.
Weight	3.7 lbs.



A usable, versatile device, the KM-2 can be a pre-amp, mixer, line amplifier or all of these functions simultaneously. A compact and reliable package, the KM-2 accepts two input signals and feeds into one output, for use as a mixer. Each of the two inputs has variable gain ranging from unity to a total gain of 20dB.

The gain function of the KM-2 makes it ideal for boosting low level signals (such as those produced by transducer microphones), and can also counter the effects of loading on a guitar pick-up. The beauty of the KM-2 is that it can perform both functions simultaneously. You can, for example, boost your transducer pick-up off an acoustic guitar in one channel, while your electric guitar goes into the second channel. Or you may have two guitars that you use during the same performance, the KM-2 allows you to use both, without having to plug and unplug them into your amplifier and at the same time can compensate for level differences between the two guitars so you don't even have to readjust your amplifier.

The versatility of the KM-2 makes it a must for any serious musician.

Specifications

Power	9V Battery
Current draw	DC9V, 0.7mA
Gain	20dB
S/N	80dB
Dimensions	3.9(W) x 2.2(H) x 2.7(D) in.
Weight	0.6 lbs.



The GE-10 features probably the highest specifications of any compact live performance equalizer on the market today. Compact and durable, the GE-10 provides touring musicians with complete control over tone coloring for PA, recording, or individual instruments.

The GE-10 provides 10 bands of equalization, each set one octave apart from 31Hz to 16KHz with a control range of ± 12 dB. Sliders are easy to use and provide extremely smooth variation. Center click detents serve to remove any band from the circuit when positioned at the 0dB mark. The overall level of the GE-10 is set by a broad-band level control.

An interesting feature of the GE-10 is the ability to switch the equalizer function in and out of circuit by slider switch, and also by remote footswitch. This feature makes the GE-10 an unusual and interesting special effect by boosting only selected bands and kicking the effect in and out at various times during a performance.

Specifications

Power consumption	3W
Frequency centers	31Hz, 62Hz, 125Hz, 250Hz, 500Hz, 1KHz, 2KHz, 4KHz, 8KHz, 16KHz
Frequency response	20Hz-40KHz ± 1 dB
Control range	± 12 dB
Gain	Unity
S/N ratio	Over 100dB
Input impedance	220K Ω
Output impedance	More than 600 Ω
Maximum output level	+15dBm
Dimensions	8.7(W) x 3.1(H) x 6.1(D) in.
Weight	4.2 lbs.



This novel accessory allows you to connect one input to up to four outputs at one time. The J-5 is great for simplifying a wiring scheme when using multiple amplifiers or line feeds, without the normal jumble of "spaghetti" normally associated with Y cords.

The J-5 is also usable in connecting several sets of speakers to one amplifier output, or in sending gate pulses from a device like a rhythm unit to other voltage controlled devices such as synthesizers or digital sequencers.

Specifications

Dimensions	3.9(W) x 1.5(H) x 2.9(D) in.
Weight	0.5 lbs.

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